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Spatial diagnostics of Hg/Ar and Hg/Xe discharge lamps by means of tomography[1] GITA REVALDE, Institute of Atomic Physics and Spectroscopy, NATALIA DENISOVA, Institute of Theoretical and Applied Mechanics, ATIS SKUDRA, JANIS SKUDRA, Institute of Atomic Physics and Spectroscopy
— The investigation of the spatial distribution of the emitting atoms in Hg/Ar, Hg/Xe capillary discharge lamps was performed. The spatial images of the lamps were registered and tomographic reconstruction was performed in dependence on the operating position of the lamps (vertical/horizontal) for the Hg (0.003 Torr) and buffer gase (Ar or Xe of 2 Torr) mixture. Fused silica capillary lamps were used with the length of 2 cm and inner diameter of 1 mm. The digital images of the lamps were obtained for different Hg,Ar,Xe emission lines in the visible region. The results of tomographic reconstruction of the spatial distribution of the excited Hg state 7^3S_1 density in the Hg/Xe and Hg/Ar lamps as well as radial distribution of the emitting atoms in the level 7^3S_1 versus radius of the capillary in dependence on working conditions will be presented. The reconstructed spatial distribution of exited Ar atoms showed more non-homogeneous structure in comparison with exited Xe atoms.

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